

### Abstract of the Disclosure

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The present invention provides an electrical power supply system for an automotive vehicle with high reliability and small size in which an adequate power is supplied to both a high power load like a blower motor and a conventional load like a battery by using a conventional alternator.

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The power supply system for the automotive vehicle comprises: an alternator with an armature winding and a field coil, a stepping-up DC/DC converter for applying a stepped up voltage of a battery to the field coil, a regulator for controlling an output voltage of the alternator by changing the output voltage in response to a rotating speed for supplying a power to the high power load, and for controlling the output voltage to be a charging voltage of the battery.

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